

REMARKS

Claims 6 to 27 now are pending. Applicants respectfully request reconsideration of the present application in view of this amendment.

Claims 6 to 8, 10 to 14, 16 to 19, 21 to 25, and 27, were rejected under 35 U.S.C. §103(a) as being anticipated by U.S. Patent No. 3,635,552 to De Lang (“De Lang reference”).

The 1974 De Lang reference concerns using an arranged light source 1 which strikes a certain dividing mirror 3 and transmitting one half of the incident beam to the reference mirror 5 and reflecting the other half to an object 4 to be tested. The De Lang reference does not teach the entire structure of the present invention – and does not suggest in a manner to one skilled in the art to take its analyzer, use it in a specified way (and placement in the setup) with the other elements used in the claims, as described herein.

Claim 6 is directed to a tunable interferometer for measuring an optical surface, and includes at least a polarizer polarizing the first interference beam and the second interference beam so that the first interference beam and the second interference beam each have a different polarization state relative to one another, the polarizer being disposed after the light source and before the beam splitter; and an analyzer positioned at an output of the interferometer, the analyzer having a variable polarization state, the analyzer tuning the interferometer as a function of the polarized first interference beam and the second interference beam, wherein depending on the polarization state of the analyzer, an additional phase is introduced into at least one of the first and second interference beams of different polarizations so that an interference fringe pattern is displaced by a distance.

Applicants respectfully believe that the De Lang reference does not describe each and every element of claim 6, including the analyzer positioned at the output of the interferometer, the analyzer having a variable polarization state and tuning the interferometer as a function of the polarized first interference beam and the second interference beam, wherein an additional phase is introduced into at least one of the interference beams so that the interference fringe pattern is displaced by a distance. The structure of the claimed invention is, as explained in the Specification, to provide a vibration-free system in which measurements can be made in a more accurate manner. Such a system is not believed to have been available or obvious to one of ordinary skill in the art at the time of invention given the improvement of measuring accuracy. If such were at least obvious, it is believed that such a system would have been in use.

Accordingly, Applicants respectfully submit that claim 6, and thus its dependent claims 7, 8, 10, and 11, are allowable. Further, Applicants respectfully submit that the remaining independent claims 12, 17, and 23, and their dependent claims, recite analogous features, as well as provide additional structural features, to claim 6.

Claims 9, 15, 20, and 26, were rejected under 35 U.S.C. §103(a) as being unpatentable over the De Lang reference in view of U.S. Patent No. 5,627,666 to Sharp et al. ("Sharp reference").

Claims 9, 15, 20, and 26 depend from independent claims 7, 8, 10, and 11, and are believed allowable over the De Lang reference for at least the same reasons as explained above.

For purposes of the present invention, the Sharp reference does not cure the deficiencies of the De Lang reference. The Sharp reference appears to concern a liquid crystal phase modulator using cholesteric circular polarizers, where a phase modulator has an electro-optically rotatable smectic liquid crystal half-wave retarder in combination with a cholesteric liquid crystal circular polarizer. The Sharp reference mentions using liquid crystal cells which have optic axes which are rotatable upon application of an electric field, and to increase the tuning range more than one smectic liquid crystal cell is used in series. The Sharp reference does not appear to teach or suggest using an analyzer in the manner described or in such a system structure as described, such as that required in the rejected claims of the present invention, to tune an interferometer.

Accordingly, Applicants respectfully submit that the De Lang and Sharp references, together or alone, do not teach or suggest the invention of claims 9, 15, 20, and 26. Applicant respectfully request that the claims, in view of the amendments above submitted, are found allowable over the De Lang and Sharp references. Withdrawal of the rejection of claims 9, 15, 20, and 26, under 35 U.S.C. §103(a) over the De Lang reference further in view of the Sharp reference is respectfully requested.

It is respectfully submitted that claims 6 to 27 are allowable and that the rejections of the claims under 35 U.S.C. §103(a) should be withdrawn.

CONCLUSION

In view of all of the above, it is believed that the rejections of claims 6 to 27 have been obviated, and it is respectfully submitted that all claims 6 to 27 are presently allowable. It is therefore respectfully requested that the rejections be withdrawn, and that the present application issue as early as possible.

Respectfully submitted,

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